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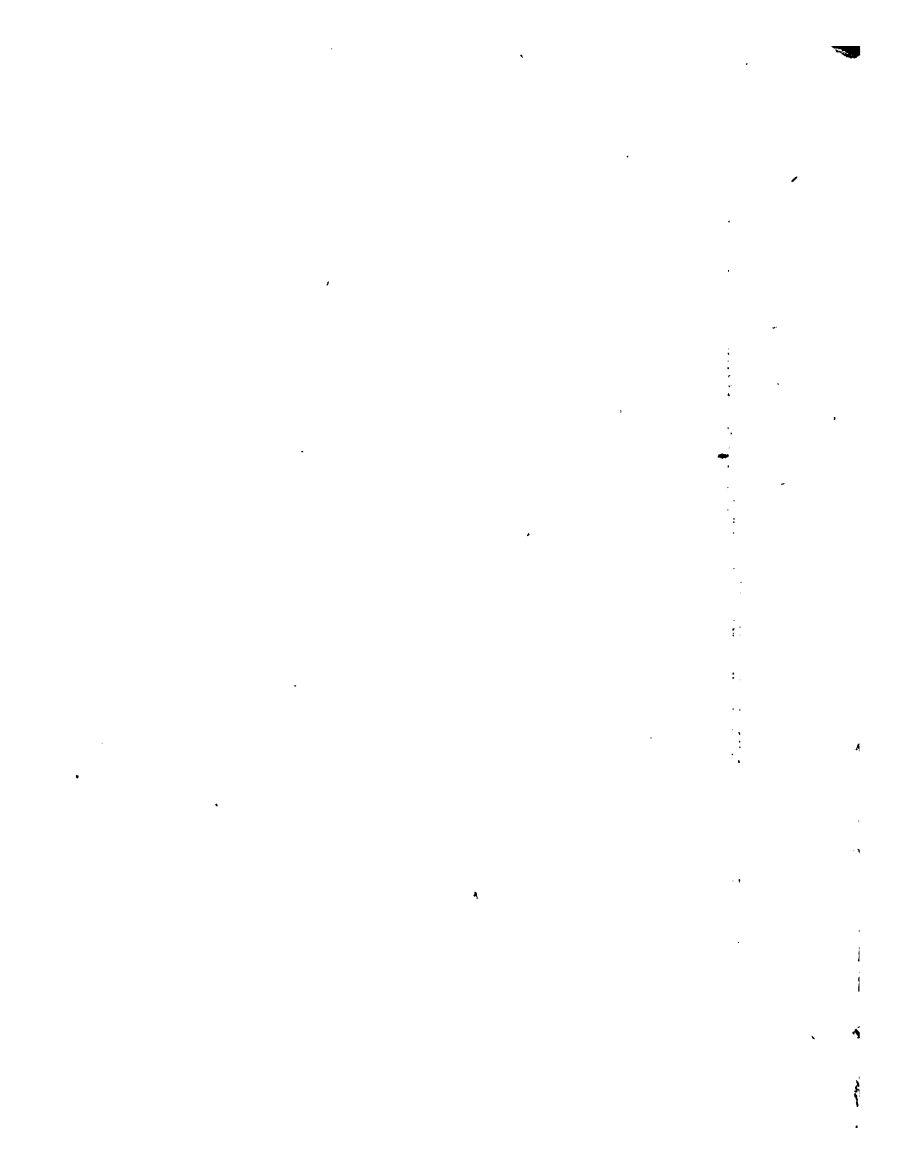
A SYNOPSIS
OF
ELEMENTARY FORMAL LOGIC
IN QUESTIONS

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SYNOPSIS OF FORMAL LOGIC.

1. Define Logic, in general, and distinguish it into Real Logic and Formal Logic, showing exactly what is meant by the expression *forms of thought*, and precisely how Formal Thought differs from Real Thought.
2. Show exactly what is meant by the celebrated question as to whether Formal Logic is a science or an art, and give, with its proof, the proper answer to the question.
3. Explain the distinction between sciences as Empirical (or Formal) and Rational (or Real), and show that Formal Logic, as a science of Thought, is empirical merely. Then state, from the point of view afforded by all the preceding questions, the whole meaning intended by giving to this aspect of Logic the name of Formal.
4. How may the general (or all-inclusive) Form of Thought be described, and what is its technical name? What are the other two Forms of Thought

usually recognized, and how is it to be shown that the one fundamental or general Form is really implied in them? What follows thence, as to the real and proper distinction between the so-called Three Fundamental Forms of thinking?

5. What distinctions in language correspond to the threefold distinction, just mentioned, in the Forms of Thought? How must Terms be accordingly defined, and why are they called so?

6. Distinguish between the Extension and the Intension of a Conception, and between the Denotation and the Connotation of a Term.

7. State, with proofs, the error in J. S. Mill's doctrine, that some terms are denotative only, and others connotative only.

8. Name and state the Four Fundamental Laws of Formal Thought, and show that the fourth is also a law of Real Thought.

9. What is meant by Division, in Logic; and how is it to be distinguished from Enumeration, on the one hand, and from Partition, on the other?

10. State the meaning of the several elements involved in Division, viz: *Totum divisum, fundamentum divisionis, membra dividenda, scala divisionis, genus summum, genera subalterna, genus proximum, species connatae, species infimæ.*

11. State the Rules of Division, and show which of the Fundamental Laws of Thought determines each of them respectively.

12. Explain the principle of Dichotomy, as involved in accurate Division, and illustrate its development into the *Tree of Porphyry*.

13. State the Law of Reciprocal Variation, holding throughout the system of Division, in regard to the two aspects of Extension and Intension belonging to the *scala divisionis* as a system of Conceptions.

14. What is meant, in Logic, by Definition? How is it distinguished from Description?

15. State the Rules of Definition, and show how they are derived from (1) the scheme of Division, and (2) the Fundamental Laws of Thought.

16. Explain the application of the Five Predicables—Genus, Species, Differentia, Property and Accident—to the process of Definition, explaining the meaning of each.

17. Describe the ground-form of the Proposition, naming and defining its three constituent elements. How may the Copula always be represented, for the purposes of formal analysis?

18. Give the classification of Propositions according to Relation, and explain the distinction between the divisions and sub-divisions thoroughly, exhibiting the apparent Principle of Relation in each case.

19. How are Categorical Judgments classified as to Quantity and Quality? Write the types of the corresponding Four Forms of the Proposition, des-

ignated by the Signs **A, E, I, O**. Explain the origin of these Signs.

20. What additional Forms were proposed by Sir William Hamilton, and on what ground? Write out the titles and Types of Hamilton's entire New Scheme of Forms, affixing to each its Sign as proposed by him.

21. What writer on Logic first introduced the principle on which this Reformed Scheme rests, and when? Which of Hamilton's New Forms were also proposed, independently, by Thomson and De Morgan? Why did these logicians reject the others? What other leading English writers on Logic have accepted and followed the fundamental principle of the Reformed Scheme?

22. Why, according to the showing of J. S. Mill, must all these New Forms be rejected, and return be made, in Formal Logic, to the original Four Forms of Aristotle?

23. What is meant by the distinction between the *distribution* and the *non-distribution* of a Term? What are the characteristic properties of the Four Forms **A, E, I, O**, respectively, with regard to the distribution of their Terms?

24. Among Categorical Judgments, what is meant by Opposition? Name the Four Orders of it, from the highest to the lowest. Define each Order with reference to its elements of difference. Between which of the Four Forms do the Four

Orders severally hold? Set these relations forth in the so-called Square of Opposition. When are Judgments *diametrically opposed*, and what is the origin of this expression?

25. What is the law of inference involved in each of the Four Orders, taken separately? What is the comprehensive law in which these separate laws may all be summarized?

26. Define Conversion, and distinguish between its two kinds, Simple and Limited, or *conversio simplex* and *conversio per accidens*. What is the principle governing all legitimate Conversion, and determining whether it may be Simple or must be Limited? Explain the meaning of the expression *per accidens*, as applied to describe Limited Conversion.

27. Which of the Four Forms are convertible simply, and why? Which is only convertible *per accidens*, and wherefore? Which is inconvertible, and for what reason? Write, by the Signs, the table of results from Conversion, for A, E, I, O, successively.

28. Explain the process of Permutation. Why is this name objectionable? What other name is the process frequently called by, and what is the objection to that? Why might Residuation be taken as the most accurate name? Write the table of Residuates, corresponding to the table of Types, for each of the Four Forms A, E, I, O.

29. Define Contraposition. What is its especial service with respect to the Form O? To which of the Four Forms is it inapplicable, and why? Write, by means of the Signs, the table of Contraposition for the Four Forms in succession.

30. Describe the general form of the Syllogism, and show how it is specialized into the Categorical, the Conditional and the Disjunctive forms.

31. Show that the Categorical Syllogism has a threefold form on two different grounds.

32. Is the Categorical Syllogism the *natural* form of reasoning? What is an *Enthymeme*, and why is it called so? What is the most frequent form of it, and what other forms may and do occur? Which is the least frequent form?

33. What is meant by calling the Categorical Syllogism the *normal* form of reasoning? Show that the reputed difference of inferential *principle* between the Categorical, Conditional and Disjunctive forms of the Syllogism is not real, but merely formal, and that the Conditional and the Disjunctive are reducible to the Categorical; and *vice versa*.

34. Show that, in every form of Syllogism, the real principle of inference is Reciprocal Determination, i. e., the immutability of the mutual relation of Cause and Effect; alike in the Categorical and the Conditional as in the obvious case of the Disjunctive.

35. Define, as elements in the Categorical Syl-

logism, the Major Term, the Minor Term and the Middle Term. Explain the use of these names to describe these elements, and show how the reason for the expression *middle term* fails when the Syllogism passes from its perfect or normal form, in what is called its First Figure, to the forms called the Second, Third and Fourth Figures.

36. What is meant by Figure? How are the Premisses of the Syllogism distinguished as Major and Minor? How many Figures are generally recognized, and what is the characteristic of each? What objections are urged against recognizing the Fourth Figure? How did Aristotle (or his immediate successors) deal with those cases of the Syllogism that are now grouped under the Fourth Figure? Why is the recognition of Figure necessary, in estimating the *formal* value of a Syllogism? Write the Figure-Signs, in terms of **M**, **S**, **P**.

37. How, for the purposes of *formal* distinction, may the principle of reasoning in the Deductive Syllogism be stated? With whom did this statement of the principle originate? Why is the statement called, in the phraseology of the Schoolmen, the *dictum de omni et nullo*? To which Figure, only, does it properly apply, and what properties of that Figure, as to the characters of its Major Premiss and its Minor Premiss, are directly necessitated by it? What property has this Figure as to the range of its proof?

38. Explain the additions to the doctrine of Figure, introduced by Keckermann and developed later by Lambert, for the purpose of giving each Figure a standing, function and principle of its own. State the modern form of Lambert's *dictum de diverso*, or principle of the Second Figure, and show how it applies. State the principle of the Third Figure, or *dictum de exemplo et excepto*, and show how that applies. State the *dictum de reciproco*, as principle of the Fourth Figure, and explain its application. Are these *dicta* really independent of the *dictum de omni et nullo*, or not? State the proofs of your opinion.

39. State and prove the Seven Rules of the valid Syllogism, reasoning from the mere conception of the Syllogism as a logical connection of S with P by means of M.

40. What is Mood? What is meant by a Mood's being valid? What, by its being invalid? How are the notations designating the Moods, and called Mood-Signs, formed?

41. By what three different methods may we determine the valid Moods belonging to the several Figures? Describe each in outline.

42. Determine, by the first or Aristotelian method, the valid Moods of the First Figure, explaining each step in the process by reference to the principle involved.

43. Explain what is meant by Reduction, and the difference between Ostensive Reduction and Reduction *per impossibile*. Show the various processes employed to effect Ostensive Reduction.

44. Obtain the several Moods of the Second, Third and Fourth Figures, and prove them valid by the Aristotelian method of Reduction. To which moods only has Reduction *per impossibile* to be applied?

45. Write the Mnemonic Hexameters that inventory by their conventional names the Moods in the successive Figures.

46. Explain all the significant consonants in the names of the Moods, and the motives of all the other letters except the mood-sign vowels.

47. Prove the following Special Properties of the Figures :—

- Figure I. (1) The Major Premiss must be a Universal.
 (2) The Minor Premiss must be an Affirmative.
 (3) The Conclusion is unrestricted as to Form.

- Figure II. (1) The Major Premiss must be a Universal.
 (2) One of the Premisses must be a Negative.
 (3) The Conclusion is restricted to the Negative Form.

- Figure III. (1) The Major Premiss is unrestricted as to Form.
 (2) The Minor Premiss must be Affirmative.
 (3) The Conclusion is restricted to the Particular Form.

- Figure IV. (1) Neither Premiss can be a Particular Negative.
 (2) If the Major Premiss is an Affirmative, the Minor must be a Universal; and if the Minor is a Negative, the Major must be a Universal.
 (3) The Conclusion is restricted to the Particular Form, unless the Minor Premiss is a Negative.

48. Determine the valid Moods in each of the Figures by the second or Lambertian method.

49. Determine them by the Modern or Direct method, without appealing to the *dicta*.

50. Give the list of the Formal Fallacies to which the Deductive Syllogism is liable, and explain the meaning of each.

51. Describe the Conditional or Conjunctive Syllogism, and give the nomenclature of its constituent parts.

52. Describe its two Modes, the *Modus Ponens* and the *Modus Tollens*, and state the conditions under which each is valid.

53. Describe the Disjunctive Syllogism and its two Modes, the *Modus tollendo ponens* and the *Modus ponendo tollens*. What is the condition of validity in both, and to what Formal Fallacy is this Syllogism liable?

54. Describe the constitution and the uses of the Dilemma.

55. What are Trains of Reasoning, and what is the distinction, in them, between Prosyllogisms and Episylogisms?

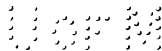
56. What is a Sorites? State and prove the law determining the number of component Syllogisms in a Sorites.

57. Describe, in all respects, the difference between the Aristotelian (or Ascending) and the Goclenian (or Descending) Sorites.

58. Give a full, accurate and clear explanation of each of the following Material Fallacies :—*Ambiguous Middle*; *Accident* (or *fallacia a dicto simpliciter ad dictum secundum quid*); *Inverse Accident* (or *fallacia a dicto secundum quid ad dictum simpliciter*); *Composition*; *Division*; *Missing the Point* (or *ignoratio elenchi*); *Non sequitur*; *Begging the Question* (or *petitio principii*); *Reasoning in a Circle* (or *circulus in probando*); *Argumentum ad hominem*; *Argumentum ad populum*; *Argumentum ad verecundiam*; *False Issue*.

59. Distinguish accurately, in the Categorical Syllogism, between the Deductive and the Inductive form of it; show that the distinction, though apparently that of reasoning in the one case by the relation of Genus and Species, and in the other by that of Cause and Effect, is not really such; that in both cases, the principle of inference is the immutability of the mutual relation of Cause and Effect, and that the real difference lies in the direction in which this relation moves between the Universal and the Particular, especially in constituting the ground upon which the assumption of the inductive Minor Premiss rests.

60. Name the Four Methods of Induction, and state the Canon of each. Upon what principle do all these Canons rest? State it in full. What is its real meaning? What, then, is the real object of



the multiplication of instances and the variation of circumstances?

61. Specify the constituent elements involved in each by its appropriate analytical symbol.

62. Compare the Four Methods as to strength, and point out the characteristic weakness of each.

63. How is the Method of Residues related to Induction and to the Four Inductive Methods?

What is the value of Inductive Reasoning in respect to the real establishment of laws of nature, in the exact sense of the phrase? Is there any method of reaching such laws, and are we in possession of the knowledge of any such?

